

TIPS 2.0 Lesson or Session Planning Template

Unit: Proportional Reasoning, Breakout 2 1hour 15 minutes

Grade K-4

Learning Goals and Consolidating Questions	<p>Math Learning Goals</p> <ul style="list-style-type: none"> • Continue to develop an understanding of proportional reasoning • Identify expectations that connect to proportional reasoning • Explore connections between learning goals and consolidating questions 	<p>Materials</p> <ul style="list-style-type: none"> - Curriculum Documents - Sticky Notes - Chart paperK/1, 2, 3, 4 - Copies of article - Concept maps - 1 copy of "Power of Thought: Hitting the Unseen Target" - 1 copy of lesson goals
<p>Minds On... 20 minutes</p>	<p>Table groups→ Hitting The Target?</p> <p>Introduce: The odds of hitting your target go up dramatically when you aim at it." Mal Pancoast quote</p> <p style="text-align: center;">&</p> <p>"Power of Thought: Hitting Unseen Target"</p> <p>Participants reflect on quote and story - impact and connections to plenary.</p> <p>Focus of this story is intended to be for the teacher, planning without a goal in mind is like trying to hit a target blindfolded.</p> <p>Open conversation regarding placement of a learning goal in the math lesson. Process vs content learning goals and their placement.</p>	<p>Jigsaw is a strategy that allows students to focus on one aspect of a topic – become an "expert" – and share that learning with the rest of the group. It is only when all members of the group bring their learning together can the entire group learn. This is a collaborative and cooperative strategy.</p>
<p>Action!</p>	<p>Grade Groups → Mining The Curriculum</p> <p>Read following sections of Recognising the Difference Between Additive and Multiplicative Thinking in Young Children:</p> <ul style="list-style-type: none"> - Introduction - Research - Results (Sections of interest) - Conclusion & Implications - Appendix: Description of Tasks <p>Action #1</p> <p>Participants review evidence of Proportional Reasoning and connections to Proportional Reasoning in curriculum expectations for their grade level. Present PR expectation in Grade 4 expectations (on slide show)</p> <p>Jigsaw – grade groups will find PR expectations and connections – record on chart paper</p> <p>Groups will share in order to see the "landscape of learning" for PR</p> <p>Grade Groups → Did the Question Hit The Target?</p> <p>Action #2</p> <p>Butterfly House (K-2)</p> <p>Centipede's 100 Shoes (3-4)</p> <p>Student responses to these stories and questions are an example of student inspiration.</p> <p>Participants answer question for their grade (more than one way).</p> <p>Participants analyze sample student responses and make connections to expectations.</p> <p>Did this question provide students the opportunity to demonstrate the lesson goal? Did this question "hit the target"?</p>	

30 minutes

DID NOT HAVE TIME FOR THIS ACTIVITY

15 minutes

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The Butterfly House

How many wings on 26 butterflies?

Possible Lesson Goal: K NSN: **Overall Expectation NS1:** demonstrate an understanding of numbers, using concrete materials to explore and investigate counting, quantity, and number relationships; **NS1.7** demonstrate an understanding of number relationships for numbers from 0 to 10, through investigation; **NS1.12** investigate addition and subtraction in everyday activities through the use of manipulatives (e.g., *interlocking cubes*), visual models (e.g., *a number line, tally marks, a hundreds carpet*), or oral exploration (e.g., *dramatizing of songs*). **Use counting and/or addition as a solution strategy. Recognize the quantity of number increasing as numbers are added.**

Grade 1 NSN: solve problems involving the addition and subtraction of single-digit whole numbers, using a variety of strategies. Count forward by 1's, 2's, 5's and 10's to 100, using a variety of tools and strategies; solve a variety of problems involving the addition and subtraction of whole numbers to 20, using concrete materials and drawings. **See the additive nature of numbers. Use addition or skip-counting as a solution strategy. Recognize the quantity of number increasing as numbers are added.**

Grade 2 NSN: solve problems involving the addition and subtraction of one-and-two-digit whole numbers, using a variety of strategies, and investigate multiplication and division. Count forward by 1's, 2's, 5's, 10's and 25's to 200, using number lines and hundreds charts, starting from multiples of 1, 2, 5, and 10; represent and explain, through investigation using concrete materials and drawings, multiplication as the combining of equal groups; **Begin to see connections between repeated addition and multiplication. Explore multiplicand (2 wings) and multiplier (number of butterflies). Use addition, skip-counting, or experiment with multiplication as a solution strategy.**

Centipedes 100 Shoes

Centipede decides to give away his 100 shoes. He gives shoes to 5 spiders (8 legs each), shoes to 2 worms, 2 woodlice (14 legs each), 4 beetles (6 legs each) 1 grasshopper (6 legs each) Is the author's math right? Did centipede give away the right number of shoes?

Possible Lesson Goal: Gr 3 NSN: solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 1000. Relate multiplication of one-digit numbers...to real-life situations, using a variety of tools and strategies. **Begin to see sets of numbers multiplicatively (recognize multiplicand OR multiplier) and experiment using multiplication as a solution strategy.**

Gr 4 NSN: solve problems involving the multiplication of one-digit whole-numbers, using a variety of mental strategies; describe relationships that involve simple whole-number multiplication. **Identify the multiplicative nature of sets of numbers (recognize multiplicand AND multiplier) (animal legs and number of animals) and use multiplication as a solution strategy.**

Consolidate Debrief

20 minutes

This was the lesson goal – does this problem provide students opportunities demonstrate their learning of this goal. (Distribute appropriate lesson goal to grade groups.
Both groups will share their observations with the group.
Identify connection between responses and possible learning goal(s).

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Home Activity or Further Classroom Consolidation

Provide participants an opportunity to review and revise concept map.

Journal Reflection: Reflect on a lesson that has really hit the target. Describe the elements that were present.

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